CLAIMS

What is claimed is:

1. An isolated polynucleotide comprising a sequence selected from the group consisting of:

(a) a nucleic acid sequence of at least 200 nucleotides which is a portion of SEQ ID NO:1 or the complement thereof; and,

(b) a nucleic acid sequence of at least 200 nucleotides which hybridizes to SEQ ID NO:1 or the complement thereof, under stringent conditions.

2. The isolated polynucleotide of claim 1 wherein said nucleic acid sequence hybridizes to SEQ ID. NO. 2 or the complement thereof under highly stringent conditions.

3. An isolated polynucleotide comprising a sequence which encodes EDG1 protein or a functional equivalent thereof, wherein said EDG1 protein comprises SEQ ID NO. 2., and wherein said functional equivalent comprises a sequence which is at least 85% identical to SEQ ID NO. 2.

4. The isolated polynucleotide of claim 3 wherein the functional equivalent is immunologically cross reactive with an antibody raised using said EDG1 protein as an immunogen, .

5. The isolatred polynucleotide of claim 3 wherein the functional equivalent inhibits proliferation of MCF-7 cells.

6. The isolated polynucleotide of claim 3 wherein said polynucleotide comprises part of an expression vector, a viral genome, or a liposome.

7. An isolated EDG1 protein or a protein which is functional equivalent said EDG1 protein, wherein said EDG1 protein comprises SEQ ID NO. 2., and wherein said functional equivalent comprises a sequence which is at least 85% identical to SEQ ID NO. 2.

8. The isolated protein of claim 7 wherein said protein is a functional equivalent of said EDG1 protein and is immunologically cross reactive with an antibody raised using said EDG1 protein as an immunogen.

9. The isolated protein of claim 7 wherein said protein is a functional equivalent of said EDG1 protein and inhibits proliferation of MCF7 cells.

10. The isolated protein of claim 7 wherein said protein is a fusion protein and comprises a

tag for labeling or isolating said protein.

11. A polypeptide which comprises a contiguous sequence within SEQ ID NO. 2, wherein said contiguous sequence is at least 8 amino acids in length, and wherein said polypeptide is a functional equivalent of human EDG1 protein.

12. The polypeptide of claim 11 wherein said polypeptide is immunologically cross-reactive with an antibody raised using EDG1 protein as an antibody.

13. The polypeptide of claim 11 wherein said polypeptide inhibits proliferation of MCF-7 cells.

14. The polypeptide of claim 10, wherein said polypeptide comprises SEQ ID NO. 3.

15. An antibody which binds to one or more epitopes in human EDG1 protein, wherein said EDG1 protein comprises SEQ ID NO. 2.

16. The antibody of claim 15 wherein said antibody is a monoclonal antibody.

17. A method of detecting cancerous cells in a biological test sample obtained from a subject known to have or suspected of having a cancer selected from the group consisting of breast cancer, testicular cancer, prostate cancer, uterine cancer, cervical cancer, ovarian cancer, and colon cancer, comprising:

a) contacting the test sample with anti-EDG1 antibody under conditions wherein binding of said antibody to EDG1 protein occurs; and

b) assaying for a complex between the antibody and a protein in the test sample, wherein a decrease in the level of the antigen-antibody complex in the test sample, as compared to the level of the antigen-antibody complex in a control sample, indicates that the test sample contains or was derived from cancerous cells.

18. The method of claim 17 wherein the test sample is a tissue sample or cell sample, and wherein said test sample is assayed by an immunocytochemical procedure which permits a determination of the intracellular location of the antigen-antibody complex.

19. A method of detecting cancerous cells in a biological test sample obtained from a subject known to have or suspected of having a cancer selected from the group consisting of breast cancer, testicular cancer, prostate cancer, uterine cancer, cervical cancer, ovarian cancer, and colon cancer, comprising:

assaying for EDG1 transcript in said test sample, wherein a decrease in the level of said

EDG1 transcript in said test sample, as compared to the level of said EDG1 in a corresponding control sample, indicates that the test sample contains or was derived from cancerous cells.

20. The method of claim 19 wherein said sample is assayed by contacting said sample with a polynucleotide which is complementary to a contiguous sequence in SEQ ID NO.1 under stringent hybridization conditions.

21. The method of claim 19 wherein said sample is assayed by a reverse-transcriptase polymerase chain reaction which employs a primer derived from SEQ ID NO. 1.

22. A method for decreasing proliferation of cancer cells selected from the group consisting of a breast cancer cells, prostate cancer cells, testicular cancer cells, ovarian cancer cells, uterine cancer cells, cervical cancer cells, and colon cancer cells, said method comprising increasing EDG1 protein activity in said cells.

23. The method of claim 22 wherein levels of EDG1 protein activity in said cells is increased by contacting the cells with EDG1 protein, a functional equivalent of EDG1 protein, or a biologically active fragment of EDG1 protein under conditions which permit uptake of said protein, said functional equivalent or said biologically active fragment, respectively.

24. The method of claim 22 wherein EDG1 protein activity is increased in said cells by contacting said cells with a nucleic acid comprising:

i) a sequence encoding EDG1 protein, a functional equivalent of EDG1 protein, or a biologically active fragment of EDG1 protein, and

ii) a promoter active in the cancer cell, wherein the promoter is operably linked to the sequence encoding EDG1 protein, a functional equivalent of EDG1 protein, or a biologically active fragment of EDG1 protein, respectively,

under condition permitting uptake of said nucleic acid by the cancer cell.

25. A primer set for amplifying an EDG1 transcript, said primer set comprising a first primer comprising a sequence which is identical to a first contiguous sequence in SEQ ID NO.1, and a second primer comprising a sequence which is complementary to a second contiguous sequence in SEQ ID NO. 2, wherein said second contiguous sequence is downstream of said first contiguous sequence.

26. The primer set of claim 25 wherein said first primer and said second primer each are at least 12 nucleotides in length.